

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (withdrawn): A method for use with an electro-kinetic air transporter and conditioner device including a high voltage generator that provides a potential difference between at least one emitter electrode and at least one collector electrode, wherein the high voltage generator is driven by both (1) a DC voltage obtained from an AC voltage source and (2) a low voltage pulse signal, the method comprising:

- (a) stepping down the DC voltage to produce a voltage sense signal indicative of a level of AC voltage source;
- (b) monitoring the voltage sense signal; and
- (c) adjusting at least one of a pulse width, duty cycle and frequency of the low voltage pulse signal, based on the monitored voltage sense signal, in order to substantially maintain the potential difference at a desired level.

Claim 2 (withdrawn): The method of claim 1, wherein the desired level is based on a control dial setting.

Claim 3 (withdrawn): The method of claim 1, wherein the desired level is a selected one of a plurality of predetermined levels.

Claim 4 (withdrawn): The method of claim 1, wherein the desired level relates to the AC voltage source having a nominal 110 VAC level.

Claim 5 (withdrawn): The method of claim 1, wherein step (c) comprises:

increasing at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal if the monitored voltage sense signal indicates that the level of the AC voltage source is below a nominal level; and

decreasing at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal if the monitored voltage sense signal indicates that the level of the AC voltage source is above the nominal level.

Claim 6 (currently amended): An electro-kinetic air transporter and conditioner device, comprising:

a micro-controller unit to produce a low voltage pulse signal;

a DC power supply to receive an incoming AC voltage and produce a first DC voltage therefrom, the first DC voltage indicative of the incoming AC voltage;

a step down circuit to step down the first DC voltage to a second DC voltage that can be monitored by the micro-controller unit without damaging the micro-controller unit, the second DC voltage also indicative of the incoming AC voltage;

an electrode configuration including at least one emitter electrode and at least one collector electrode; and

high voltage generator adapted to provide a potential difference between the at least one emitter electrode and the at least one collector electrode, wherein the high voltage generator is adapted to be driven by both (1) the first DC voltage produced by the DC power supply and (2) the low voltage pulse signal produced by the micro-controller unit;

wherein the micro-controller unit is adapted to monitors the second DC voltage and adjusts at least one of a pulse width, duty cycle and frequency of the low voltage pulse signal, based on the monitored second DC voltage, in order to substantially maintain the potential difference at a desired level.

Claim 7 (original): The device of claim 6, wherein the desired level is based on a control dial setting.

Claim 8 (original): The device of claim 6, wherein the desired level is a selected one of a plurality of predetermined levels.

Claim 9 (original): The device of claim 6, wherein the desired level relates to the incoming AC voltage having a nominal 110 VAC level.

Claim 10 (original): The device of claim 6, wherein the micro-controller unit is adapted to:
increase at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal if the monitored second DC voltage indicates that the level of the incoming AC voltage is below a nominal level; and

decrease at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal if the monitored voltage sense signal indicates that the level of the incoming AC voltage is above the nominal level.

Claim 11 (original): The device of claim 6, wherein the step down circuit includes a resistor network.

Claim 12 (currently amended): The device of claim 6, wherein the high voltage generator includes:

a step-up transformer including a primary side and a secondary side;

an electronic switch adapted to that couples the low voltage signal from the micro-controller unit to the primary side of the step-up transformer, the primary side also coupled to the first DC voltage; and

a voltage doubler coupled to the secondary side of the step-up transformer, the voltage doubler producing a high voltage signal that provides the potential difference between the at least one emitter electrode and the at least one collector electrode, a level of the high voltage signal being based on the pulse width, duty cycle and frequency of the low voltage pulse signal.

Claim 13 (original): The device of claim 12, wherein the electronic switch comprises an insulated gate bipolar transistor.

Claim 14 (withdrawn): A method for use with an electro-kinetic air transporter and conditioner device including a high voltage generator that provides a potential difference between at least one emitter electrode and at least one collector electrode, the method comprising:

(a) monitoring a voltage sense signal indicative of a level of an AC voltage source used to power the device;

(b) if the voltage sense signal falls below a nominal level, increasing at least one of a pulse width, duty cycle and frequency of a low voltage pulse signal that drives the high voltage generator; and

(c) if the voltage sense signal rises above the nominal level, decreasing at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal that drives the high voltage generator.

Claim 15 (withdrawn): The method of claim 14, further comprising producing a high voltage signal based on the low voltage pulse signal, the high voltage signal providing the potential difference between the at least on emitter electrode and the at least one collector electrode.

Claim 16 (currently amended): An electro-kinetic air transporter and conditioner device, air treatment apparatus comprising:

a high voltage generator that provides a potential difference between at least one emitter electrode and at least one collector electrode;

a controller adapted to monitor a voltage sense signal indicative of a level of an AC voltage source; and

the controller further adapted to:

increase at least one of a pulse width, duty cycle and frequency of a low voltage pulse signal that drives the high voltage generator, if the voltage sense signal falls below a nominal level; and

decrease at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal that drives the high voltage generator, if the voltage sense signal climbs above the nominal level

a micro-controller unit to produce a low voltage pulse signal;

a DC power supply to receive an incoming AC voltage and produce a first DC voltage therefrom;

a step down circuit to step down the first DC voltage to a second DC voltage that can be monitored by the micro-controller unit;

an electrode configuration including at least one emitter electrode and at least one collector electrode; and

a high voltage generator adapted to provide a potential difference between the at least one emitter electrode and the at least one collector electrode, wherein the high voltage generator is adapted to be driven by both (1) the first DC voltage produced by the DC power supply and (2) the low voltage pulse signal produced by the micro-controller unit;

wherein the micro-controller unit is adapted to monitor the second DC voltage and:

(i) increase at least one of a pulse width, duty cycle and frequency of the low voltage pulse signal if the voltage sense signal falls below a designated level and

(ii) decrease at least one of the pulse width, duty cycle and frequency of the low voltage pulse signal if the voltage sense signal climbs above the designated level,

based on the monitored second DC voltage, in order to substantially maintain the potential difference at a desired level.

Claim 17 (withdrawn): A method for use with an electro-kinetic air transporter conditioner device including a high voltage generator that provides a potential difference between at least one emitter electrode and at least one collector electrode, the method comprising:

- (a) monitoring the AC voltage source that is used to power the electro-kinetic device; and
- (b) adjusting the signal that drives the high voltage generator, based on the monitoring results of step (a) in order to substantially maintain the potential difference at a desired level.

Claim 18 (new): An air treatment apparatus comprising:

a housing;

at least one circuit supported by the housing, the at least one circuit configured to:

- (a) receive an incoming voltage derived from a power supply; and
- (b) reduce the incoming voltage to a reduced voltage;

at least one emitter electrode supported by the housing;

at least one collector electrode supported by the housing;

a voltage generator operatively coupled to the at least one circuit, the voltage generator configured to produce a potential difference between the at least one emitter electrode and the at least one collector electrode, the potential difference being operable to cause a flow of air between the at least one emitter electrode and the at least one collector electrode; and

a controller operatively coupled to the voltage generator, the controller configured to:

- (a) monitor the reduced voltage;
- (b) produce a voltage pulse signal based on the monitored reduced voltage, the voltage pulse signal having at least one characteristic; and
- (c) adjust the at least one characteristic of the voltage pulse signal to adjust the potential difference of the voltage generator.

Claim 19 (new): The air treatment apparatus of claim 18, wherein the at least one characteristic includes a characteristic selected from the group consisting of a pulse width, a duty cycle and a frequency.

Claim 20 (new): The air treatment apparatus of claim 18, wherein: (a) the at least one circuit includes a step down circuit; and (b) the voltage generator includes a high voltage generator.

Claim 21 (new): The air treatment apparatus of claim 18, wherein the voltage generator has: (a) an electronic switch configured to receive the voltage pulse signal; and (b) a transformer configured to receive the incoming voltage.

Claim 22 (new): The air treatment apparatus of claim 18, wherein: (a) the emitter electrode has an elongated shape; and (b) the collector electrode has an elongated shape, the air treatment apparatus having: (i) an intake vent supported by the housing; and (ii) an exhaust vent supported by the housing.